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# **2005 MICHIGAN FALL TURKEY HUNTER SURVEY**

Brian J. Frawley

## **ABSTRACT**

*A survey of turkey hunters was conducted following the 2005 fall hunting season to determine turkey harvest and hunter participation. During the 2005 fall hunt, an estimated 17,100 hunters harvested about 4,700 turkeys. Harvest decreased 4% between 2004 and 2005 largely because hunter success declined. About 28% of hunters successfully harvested a turkey in 2005, compared to 30% in 2004. About 59% of the hunters rated their hunting experience as excellent, very good, or good.*

## **INTRODUCTION**

Fall wild turkey (*Meleagris gallopavo*) hunting seasons were implemented in Michigan to maintain turkey populations at levels matching biological and social carrying capacities. In 2005, 14 management units totaling 31,935 square miles were open for fall turkey hunting during October 3-November 14 (Figure 1). Compared to 2004, hunting was permitted in five additional counties (Lenawee, Mecosta, Newaygo, Oceana, and Washtenaw) but suspended in six counties (Alcona, Arenac, Clare, Gladwin, Iosco, and Presque Isle).

People interested in obtaining a hunting license for the fall season could enter into a random license drawing conducted by the Department of Natural Resources. Applicants could choose one hunt area. Any licenses available after the drawing was completed were made available on a first-come, first-served basis to applicants that were unsuccessful in the drawing. Beginning one week after licenses were available to unsuccessful applicants, all remaining licenses were made available to nonapplicants. Leftover licenses were available for eleven management units (G, GB, GC, HA, HB, L, M, N, O, Q, and W; Table 1). Licenses for units GC, HA, HB, Q, T, and WA were valid on private lands only, while licenses for units G, GB, J, L, M, N, O, and W were valid on



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either land ownership types (i.e., public or private land). Hunters were allowed to take one turkey of either sex with the harvest tag issued with their license.

The Wildlife Division has the authority and responsibility to protect and manage the wildlife resources of the State of Michigan. Harvest surveys are one of the management tools used by the Wildlife Division to accomplish its statutory responsibility. Estimating harvest, hunting effort, and hunter satisfaction are among the primary objectives of these surveys.

## **METHODS**

The Wildlife Division provided hunters the option to voluntarily report information about their turkey hunting activity via the Internet. This option was advertised in the hunting regulations booklet. Hunters could report information anytime during the hunting season. Hunters reported whether they hunted, number of days spent afield, and whether they harvested a turkey. Successful hunters also were asked to report where their turkeys were taken (public or private land) and beard length of the harvested bird. Birds with a beard <4 inches long were classified as juveniles (<1 year old), while birds with longer beards were adults ( $\geq 1$  year old). Finally, hunters rated their overall hunting experience (excellent, very good, good, fair, or poor).

Following the 2005 fall turkey hunting season, a questionnaire was sent to 4,483 randomly selected people that had purchased a turkey hunting license (resident turkey, senior resident turkey, and nonresident turkey licenses) and had not already voluntarily reported harvest information via the Internet. Hunters receiving the questionnaire were asked to report the same information that was collected from hunters that reported voluntarily on the Internet.

Estimates were calculated using a stratified random sampling design that included 15 strata (Cochran 1977). Hunters were stratified based on the management unit where their license was valid (14 management units). Hunters that had voluntarily reported information about their hunting activity via the Internet before the mail survey sample was selected were treated as a separate stratum.

Because estimates were based on information collected from random samples of hunting license buyers, these estimates were subject to sampling errors (Cochran 1977). Thus, a 95% confidence limit (CL) was calculated for each estimate. In theory, this confidence limit can be added and subtracted from the estimate to calculate the 95% confidence interval. The confidence interval is a measure of the precision associated with the estimate and implies that the true value would be within this interval 95 times out of 100. Unfortunately, there are several other possible sources of error in surveys that are probably more serious than theoretical calculations of sampling error. They include failure of participants to provide answers (nonresponse bias), question wording, and question order. It is very difficult to measure these biases; thus, estimates were not adjusted for these possible biases.

Statistical tests are used routinely to determine the likelihood that the differences among estimates are larger than expected by chance alone. The overlap of 95% confidence intervals was used to determine whether estimates differed. Non-overlapping 95% confidence intervals was equivalent to stating that the difference between the means was larger than would be expected 995 out of 1,000 times, if the study had been repeated (Payton et al. 2003).

Questionnaires were mailed initially during mid-November 2005, and up to two follow-up questionnaires were mailed to nonrespondents. Although 4,483 people were sent the questionnaire, 34 surveys were undeliverable resulting in an adjusted sample size of 4,449. Questionnaires were returned by 3,736 people, yielding an 84% adjusted response rate. In addition, 101 people voluntarily reported information about their hunting activity via the Internet.

## RESULTS

In 2005, the Wildlife Division offered 52,900 licenses for sale, and hunters purchased 21,343 licenses for the fall turkey hunting season (Table 1). Licensees included 14,682 people that were successful in the drawing for a license and 318 applicants that were unsuccessful in the drawing. In addition to the applicants, 6,343 people that had not entered into the drawing purchased a license.

The number of licenses sold in 2005 increased 6% from 2004. In 2005, about 17,093 hunters spent 103,404 days afield pursuing turkeys ( $\bar{x}$  = 6.0 days/hunter) and harvested 4,722 birds (Table 2). The number of people pursuing turkeys increased 5% from last year. This increase probably occurred because more licenses were available for sale (i.e., license quota increased 30%). About 95% of the hunters that went afield were men ( $16,175 \pm 171$ ), and 5% of the hunters were women ( $917 \pm 171$ ). The average age of the license buyers was 46 years (Figure 2). About 5% of the license buyers were younger than 17 years old (1,122).

Hunter success was 28% in 2005, compared to 30% success in 2004. However, hunter success is not directly comparable between years because the area and number of management units open to hunting changed between 2004 and 2005. The area of nine management units was the same in both 2004 and 2005 (G, GB, M, N, O, Q, T, W, and WA). Hunter success in these units was  $34 \pm 2\%$  in 2004 and  $30 \pm 2\%$  in 2005. Thus, hunter success appeared to be similar or slightly less between 2004 and 2005.

Harvest decreased 4% between 2004 and 2005 (Figure 3). Harvest decreased primarily because hunter success declined statewide. Counties with hunters taking 200 or more turkeys included Delta, Montcalm, Allegan, Barry, Calhoun (Table 3).

About 93% of turkey hunters hunted solely on private land, 5% hunted on public land only, and 3% hunted on both private and public lands (Table 4). Of the 4,722 turkeys harvested in 2005, 95% of these birds were taken on private land (4,476), while about 5% of the harvest (244) was taken on public land (Tables 5 and 6). Additionally, two birds were harvested from land of unknown ownership. About 53% of the harvested

birds had a beard ( $2,526 \pm 245$ ). Most of these bearded birds (80%) were adults ( $2,015 \pm 224$ ); 18% were juvenile birds ( $485 \pm 110$ ).

Of the 17,093 turkey hunters in 2005, nearly  $59 \pm 2\%$  rated their hunting experience as either excellent ( $2,216 \pm 241$ ), very good ( $3,178 \pm 281$ ), or good ( $4,663 \pm 329$ ) (Table 7). About  $21 \pm 2\%$  of the hunters rated their experience as fair ( $3,630 \pm 296$  hunters), while  $18 \pm 2\%$  of the hunters rated their experience as poor ( $3,018 \pm 276$  hunters). Additionally, about 2% of the hunters ( $387 \pm 106$  hunters) failed to rate their hunting experience.

Changes in hunter satisfaction generally parallel changes in hunter success (Figure 4). Between 2004 and 2005, hunter success decreased from 30% to 28%, however, satisfaction was unchanged.

## **ACKNOWLEDGEMENTS**

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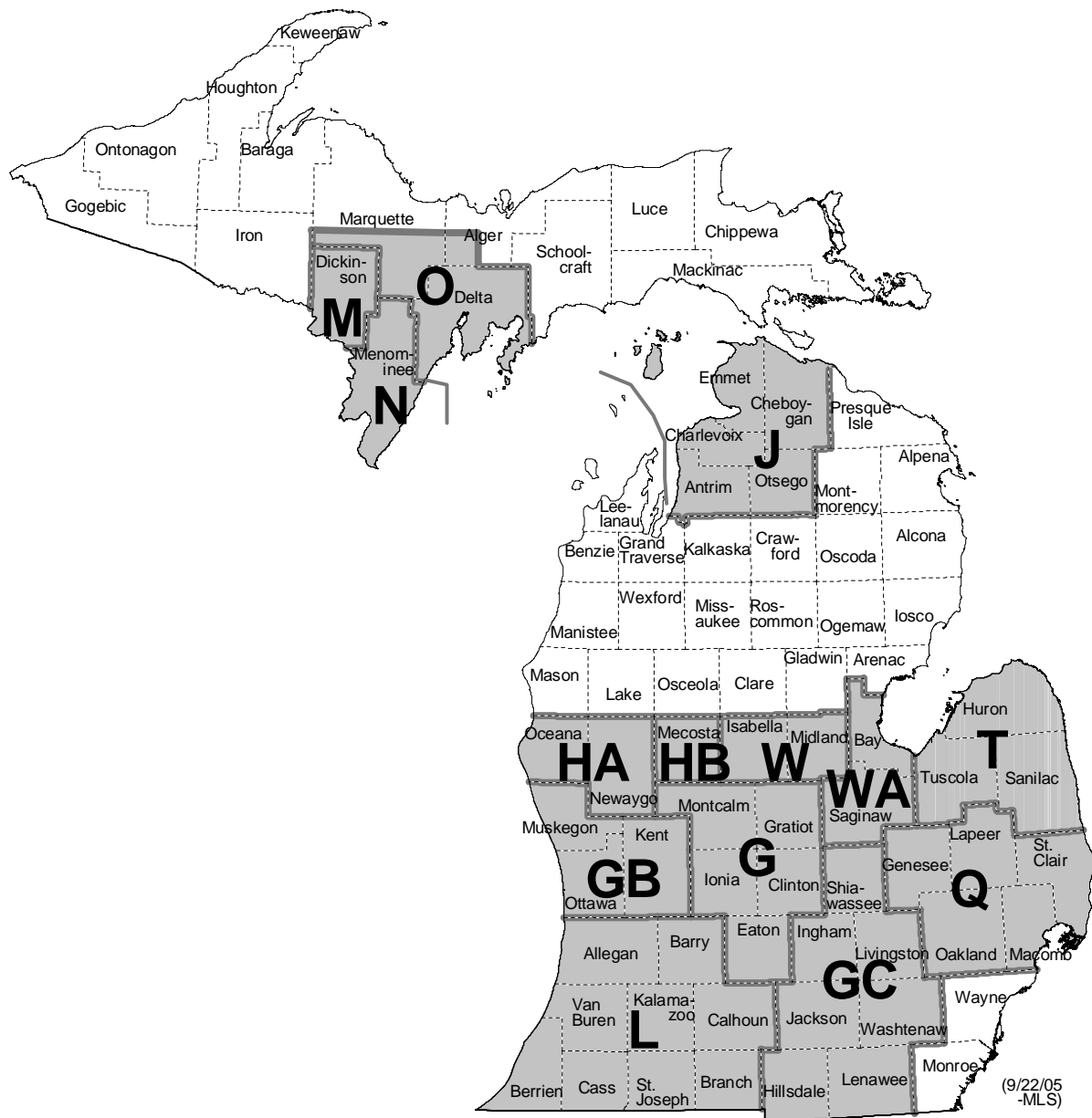


Figure 1. Management units open for fall turkey hunting in Michigan, 2005.

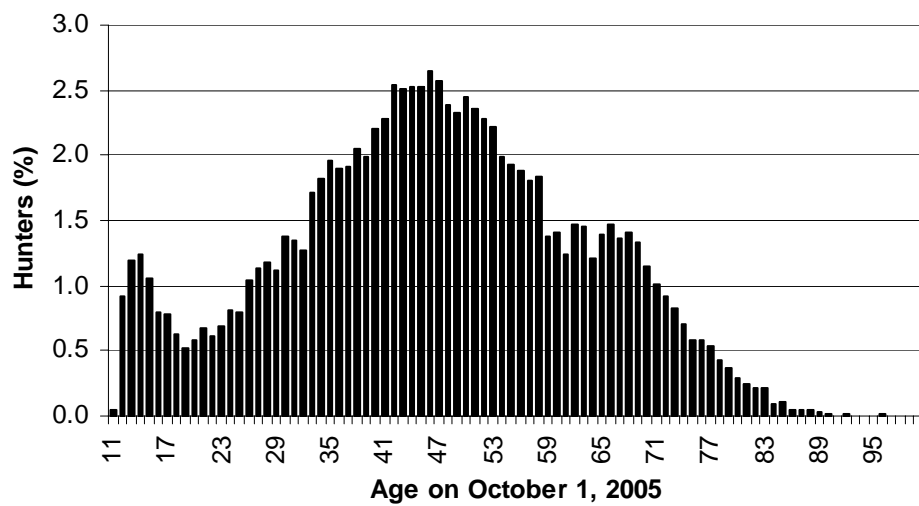


Figure 2. Age of people that purchased a turkey hunting license in Michigan for the 2005 fall hunting season ( $\bar{x} = 46$  years). Licenses were purchased by 21,343 people.

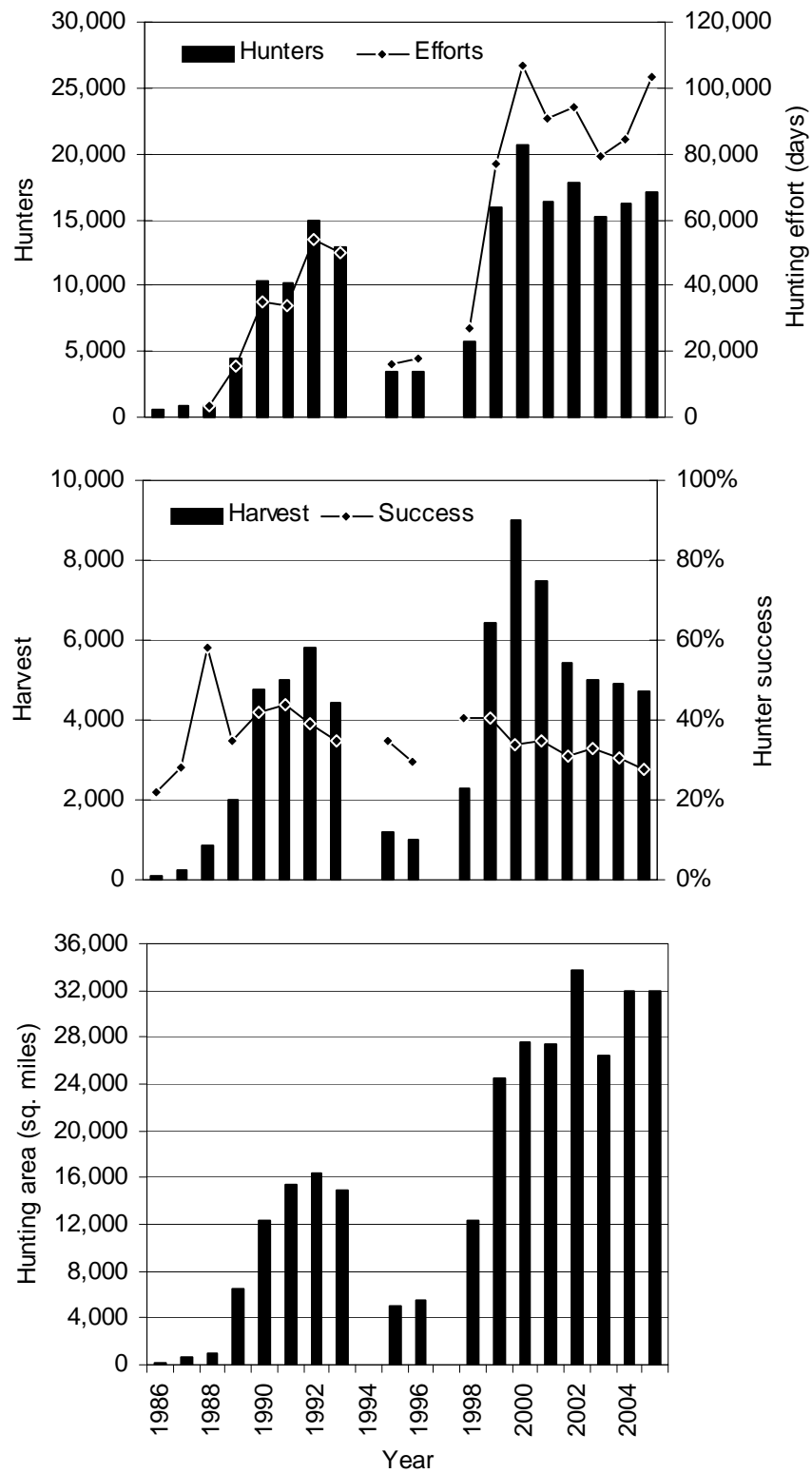


Figure 3. Number of hunters, harvest, hunting efforts, hunting success, and hunting area during the fall turkey hunting season, 1986-2005. Turkeys were not hunted during the fall in 1994 and 1997.

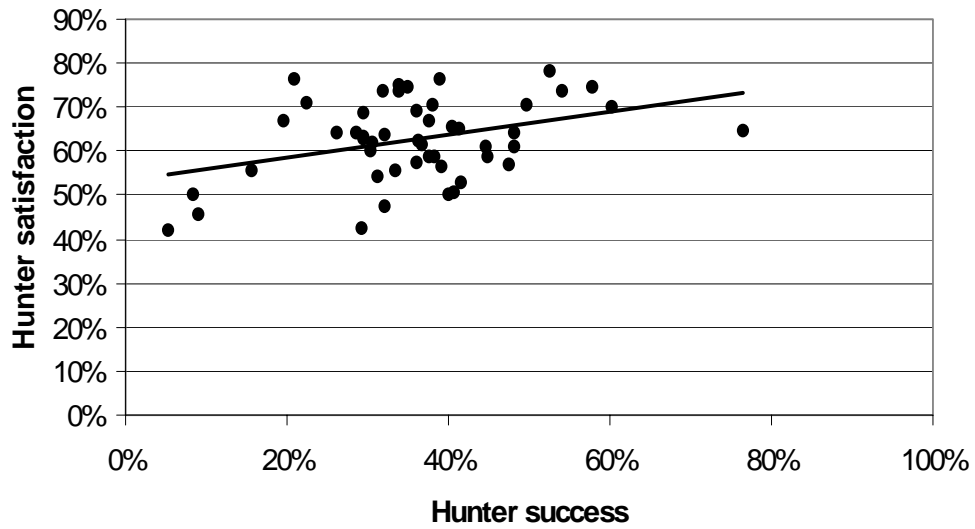


Figure 4. Hunter satisfaction (expressed as the percentage of hunters rating their hunting experience as excellent, very good, or good) associated with hunter success for each of 49 counties in Michigan during the 2005 fall turkey hunting season.



Table 1. Number of hunting licenses available and people applying for licenses during the 2005 Michigan fall turkey hunting season.

Manage- ment unit	Licenses available (quota)	Number of eligible applicants	Number of applicants successful in drawing	Number of licenses purchased by successful applicants	Number of licenses remaining after drawing	Number of leftover licenses purchased by unsuccessful applicants	Number of leftover licenses purchased by people not in the drawing	Licenses sold
G	6,400	2,926	2,525	1,661	3,875	128	1,220	3,009
GB	4,250	1,758	1,640	1,020	2,610	34	646	1,700
GC <sup>a</sup>	4,000	3,399	3,399	2,172	601	26	517	2,715
HA <sup>a</sup>	1,200	1,092	1,092	710	108	6	91	807
HB <sup>a</sup>	700	502	502	315	198	3	168	486
J	2,000	2,292	2,001	1,128	0	0	0	1,128
L	21,000	4,587	4,573	3,160	16,427	9	2,667	5,836
M	1,400	333	333	219	1,067	3	166	388
N	550	369	369	269	181	2	109	380
O	2,500	657	657	451	1,843	6	276	733
Q <sup>a</sup>	3,000	2,841	2,841	1,726	159	75	71	1,872
T <sup>a</sup>	1,000	1,946	1,000	651	0	0	0	651
W	4,200	1,305	1,292	790	2,908	26	412	1,228
WA <sup>a</sup>	700	848	700	410	0	0	0	410
Statewide	52,900	24,855	22,924	14,682	29,977	318	6,343	21,343

<sup>a</sup>Licenses were valid on private lands only.

Table 2. Number of hunters, harvest, hunting success, and hunting efforts during the 2005 Michigan fall turkey hunting season.

Management unit	Hunters		Harvest		Hunting success		Hunting efforts (days)		Days per hunter ( $\bar{x}$ )	
	Total	95% CL	Total	95% CL	%	95% CL	Total	95% CL	Mean	95% CL
G	2,402	121	640	123	27	5	14,891	1,605	6.2	0.6
GB	1,332	71	412	73	31	5	7,996	927	6.0	0.6
GC <sup>a</sup>	2,180	109	433	99	20	4	15,241	1,679	7.0	0.7
HA <sup>a</sup>	682	28	225	35	33	5	3,747	423	5.5	0.6
HB <sup>a</sup>	422	17	115	22	27	5	2,318	275	5.5	0.6
J	906	44	312	49	34	5	4,978	696	5.5	0.7
L	4,598	243	1,124	232	24	5	28,739	3,325	6.2	0.6
M	308	17	110	19	36	6	1,848	239	6.0	0.7
N	318	14	130	18	41	5	1,614	170	5.1	0.5
O	616	28	284	37	46	6	3,191	384	5.2	0.6
Q <sup>a</sup>	1,452	79	346	73	24	5	8,338	950	5.7	0.6
T <sup>a</sup>	564	22	135	26	24	5	3,541	356	6.3	0.6
W	960	52	329	55	34	5	4,957	613	5.2	0.6
WA <sup>a</sup>	354	14	128	18	36	5	2,007	224	5.7	0.6
Statewide <sup>b</sup>	17,093	323	4,722	316	28	2	103,404	4,443	6.0	0.2

<sup>a</sup>Licenses were valid on private lands only.

<sup>b</sup>Column totals may not equal statewide totals because of rounding errors.

Table 3. Number of hunters, hunting effort, harvest, hunter success, and hunter satisfaction during the 2005 Michigan fall turkey hunting season, summarized by county.

County	Hunters <sup>a</sup>		Hunting efforts (days) <sup>a</sup>		Harvest <sup>a</sup>		Hunter success		Hunter satisfaction <sup>b</sup>	
	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL
Alger	30	15	127	76	12	10	40	25	50	25
Allegan	590	178	3,221	1,130	206	108	35	15	75	14
Antrim	239	45	935	235	99	31	41	10	65	10
Barry	605	181	3,035	1,230	204	108	34	15	75	14
Bay	34	11	157	69	26	10	76	14	65	16
Berrien	184	104	785	536	17	32	9	16	45	29
Branch	318	135	1,789	1,005	101	77	32	20	74	19
Calhoun	687	191	4,358	1,542	202	108	29	13	64	14
Cass	422	153	2,486	1,178	88	71	21	15	76	16
Charlevoix	58	24	260	144	31	18	54	21	74	19
Cheboygan	172	40	915	321	50	23	29	11	43	12
Clinton	242	82	1,459	643	91	51	38	17	67	17
Delta	371	38	1,967	357	223	35	60	7	70	7
Dickinson	299	18	1,815	239	110	19	37	6	61	6
Eaton	322	93	1,854	697	63	43	20	12	67	14
Emmet	103	32	638	323	34	19	33	15	56	16
Genesee	182	56	783	302	57	32	31	15	54	16
Gratiot	260	85	1,383	578	116	58	45	17	59	17
Hillsdale	199	71	1,551	766	59	40	30	17	63	18
Huron	111	24	746	205	29	13	26	11	64	11
Ingham	166	66	1,039	549	50	37	30	19	60	20

<sup>a</sup>Number of hunters does not add up to statewide total because hunters can hunt in more than one county. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.

<sup>b</sup>Proportion of hunters that rated their hunting experience as excellent, very good, or good.

Table 3 (continued). Number of hunters, hunting effort, harvest, hunter success, and hunter satisfaction during the 2005 Michigan fall turkey hunting season, summarized by county.

County	Hunters <sup>a</sup>		Hunting efforts (days) <sup>a</sup>		Harvest <sup>a</sup>		Hunter success		Hunter satisfaction <sup>b</sup>	
	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL
Ionia	348	96	2,290	806	100	54	29	13	64	14
Isabella	328	55	1,443	338	163	42	50	10	71	9
Jackson	374	94	2,004	627	135	59	36	13	69	13
Kalamazoo	338	138	1,906	1,139	53	55	16	15	56	21
Kent	351	69	2,072	624	107	41	30	10	62	11
Lapeer	347	73	1,928	564	132	47	38	11	71	11
Lenawee	157	64	1,153	627	8	15	5	9	42	21
Livingston	249	79	1,417	523	84	47	34	16	74	15
Macomb	72	36	431	281	6	11	8	14	50	26
Marquette	82	24	344	128	43	18	52	15	78	13
Mecosta	317	24	1,678	252	115	22	36	6	63	6
Menominee	313	15	1,590	170	130	18	42	5	53	5
Midland	323	55	1,511	370	153	41	47	10	57	10
Montcalm	483	111	2,754	820	215	78	45	12	61	12
Muskegon	329	68	2,199	625	190	54	58	11	75	10
Newaygo	354	39	1,718	310	143	30	40	7	65	7
Oakland	174	55	1,088	449	67	35	38	16	59	16
Oceana	138	29	866	274	67	21	48	12	61	11
Otsego	226	44	1,288	417	92	30	41	11	51	11
Ottawa	281	64	1,391	421	109	42	39	12	76	11
Saginaw	190	20	1,096	198	92	16	48	7	64	7

<sup>a</sup>Number of hunters does not add up to statewide total because hunters can hunt in more than one county. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.

<sup>b</sup>Proportion of hunters that rated their hunting experience as excellent, very good, or good.

Table 3 (continued). Number of hunters, hunting effort, harvest, hunter success, and hunter satisfaction during the 2005 Michigan fall turkey hunting season, summarized by county.

County	Hunters <sup>a</sup>		Hunting efforts (days) <sup>a</sup>		Harvest <sup>a</sup>		Hunter success		Hunter satisfaction <sup>b</sup>	
	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL
St. Clair	246	64	1,383	462	79	38	32	13	64	13
St. Joseph	235	116	1,191	794	84	71	36	24	57	25
Sanilac	148	27	921	240	56	18	38	10	59	10
Shiawassee	170	66	1,410	718	38	30	22	16	71	18
Tuscola	161	28	910	226	48	17	30	9	69	9
Van Buren	384	147	2,822	1,457	150	94	39	19	57	20
Washtenaw	158	64	950	633	50	37	32	19	48	21
Unknown	4,689	324	30,348	3,328	142	59	3	1	44	4

<sup>a</sup>Number of hunters does not add up to statewide total because hunters can hunt in more than one county. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.

<sup>b</sup>Proportion of hunters that rated their hunting experience as excellent, very good, or good.

Table 4. Number and proportion of hunters hunting on private and public lands during the fall 2005 Michigan turkey hunting season.

Management unit	Private lands only				Public lands only				Both private and public lands				Unknown ownership			
	Total	95% CL	%	95% CL	Total	95% CL	%	95% CL	Total	95% CL	%	95% CL	Total	95% CL	%	95% CL
G	2,366	37	99	1	36	37	1	1	0	0	0	0	0	0	0	0
GB	1,281	33	96	2	23	22	2	1	28	25	2	2	0	0	0	0
GC <sup>a</sup>	2,180	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0
HA <sup>a</sup>	682	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0
HB <sup>a</sup>	422	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0
J	550	54	61	5	234	48	26	5	118	37	13	4	4	7	<1	1
L	4,194	168	91	3	271	139	6	3	134	100	3	2	0	0	0	0
M	156	21	51	6	99	20	32	6	50	16	16	4	2	4	1	1
N	251	16	79	4	38	12	12	4	30	11	9	3	0	0	0	0
O	440	34	71	5	88	26	14	4	81	26	13	4	6	7	1	1
Q <sup>a</sup>	1,452	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0
T <sup>a</sup>	564	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0
W	929	22	97	2	27	20	3	2	4	8	0	1	0	0	0	0
WA <sup>a</sup>	354	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0
Statewide <sup>b</sup>	15,820	189	93	1	816	158	5	1	445	114	3	1	12	11	0	0

<sup>a</sup>Licenses were valid on private lands only.

<sup>b</sup>Number of hunters may not equal statewide totals because of rounding errors.

Table 5. Statewide turkey harvest during the 2005 Michigan fall turkey hunting season, summarized by land ownership type and turkey sex and age.

Land ownership Turkey sex and age	Harvest	
	Total	95% CL
Private lands		
Males	2,405	242
Juveniles	432	108
Adults	1,955	221
Unknown	17	13
Females	2,069	223
Unknown sex	2	3
Subtotal – Private lands <sup>a</sup>	4,476	312
Public lands		
Males	119	43
Juveniles	51	20
Adults	60	37
Unknown	9	11
Females	125	53
Unknown sex	0	0
Subtotal – Public lands <sup>a</sup>	244	68
Unknown lands	2	3
Grand total <sup>a</sup>	4,722	316

<sup>a</sup>Column totals may not equal subtotals and grand total because of rounding errors.

Table 6. Number of turkeys harvested on private and public lands during the 2005 Michigan fall turkey hunting season.

Management unit	Private lands		Public lands		Unknown ownership	
	Total	95% CL	Total	95% CL	Total	95% CL
G	631	122	9	16	0	0
GB	406	73	7	10	0	0
GC <sup>a</sup>	433	99	0	0	0	0
HA <sup>a</sup>	225	35	0	0	0	0
HB <sup>a</sup>	115	22	0	0	0	0
J	265	47	47	22	0	0
L	1,070	228	54	55	0	0
M	63	15	45	13	2	3
N	112	17	18	8	0	0
O	232	35	52	19	0	0
Q <sup>a</sup>	346	73	0	0	0	0
T <sup>a</sup>	135	26	0	0	0	0
W	316	54	13	13	0	0
WA <sup>a</sup>	128	18	0	0	0	0
Statewide <sup>b</sup>	4,476	312	244	68	2	3

<sup>a</sup>Licenses were valid on private lands only.

<sup>b</sup>Column totals may not equal statewide total because of rounding errors.



Table 7. How hunters rated their hunting experience during the 2005 Michigan fall turkey hunting season.

Management unit	Satisfaction level (% of hunters)					
	Excellent	Very good	Good	Fair	Poor	No answer
G	16	16	26	21	18	3
GB	11	25	26	19	15	4
GC <sup>a</sup>	12	19	25	23	19	2
HA <sup>a</sup>	14	19	27	24	15	1
HB <sup>a</sup>	13	16	30	20	18	3
J	13	17	26	21	22	1
L	13	19	29	20	17	2
M	8	17	35	21	16	3
N	10	15	27	23	22	3
O	11	26	30	16	15	3
Q <sup>a</sup>	13	16	29	21	19	3
T <sup>a</sup>	12	23	27	20	16	2
W	16	17	24	24	19	0
WA <sup>a</sup>	12	13	30	27	15	3
Statewide	13	19	27	21	18	2

<sup>a</sup>Licenses were valid on private lands only.